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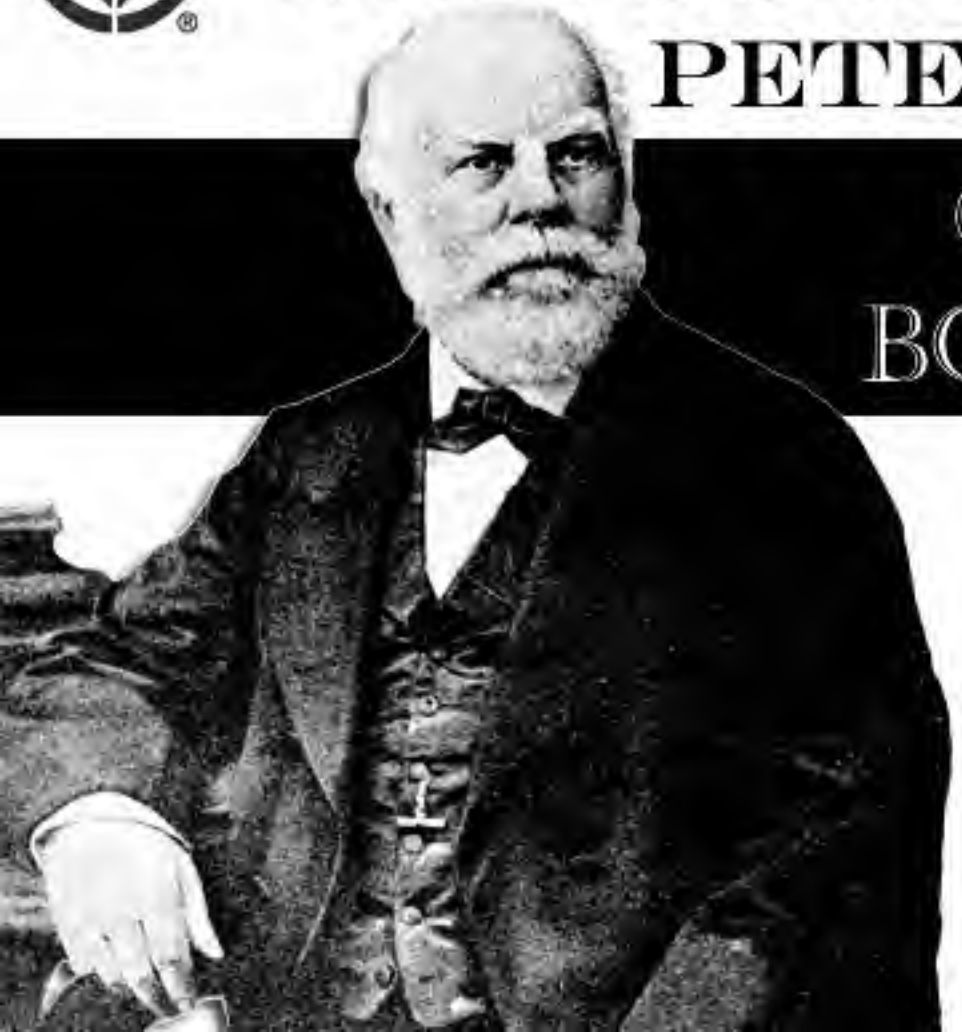

Pagination Note:
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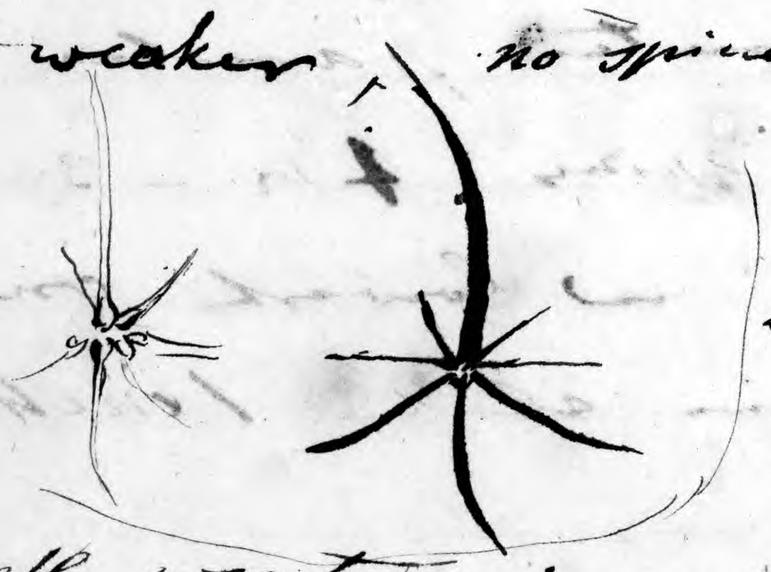
Echinocereus rosiniens. Fendler's only specimen before me agrees well with that of Dr Wislizenus: ribs 10, tuberculated, very much interrupted, areolae obovato-orbiculatae; radial spines about 10 weak somewhat setose, yellowish greenish, at last gray; 3-4 lines long; central spines, 1-3, (longer one below with two additional upper ones): ⋮) a little stouter and longer all 6 lines long, of slightly brownish below, lighter above.

Echinocereus Fendleri vide pag 45. globoso-ovatus, simplex s. e basi ~~ramosus~~ proliferus, caespitosus; costis 9-10 obliquis tuberculatis interruptis areolis orbiculatis approximatis (basi bulbosis robustis elongatis) aculeis radialibus sub 7 compressis, subincurvis (fuscis demum cinereis tribus inferioribus longioribus, superioribus brevioribus, summo nullo) ~~fuscis demum cinereis~~; aculeo centrali robustiore longiore tortiusculo curvato sursum verso atro fusco; flore — — vide pag 45.

The specimens before me are 2½ inches high and at base of the same diameter; areolae 4-5 lines distant; lower radial spines 7-10 upper ones 3 or 4 to 6 lines long; central spine somewhat erect, curved upward, 10-15 lines long, — radiating spines straight or slightly curved, the longest one directed downward, two next to it lateral nearly equal in length, the 2 next above ~~somewhat~~ shorter forming right angles with the central spine; the two following upwards are much shorter and weaker, no spine above, opposite the lowest one.



I have a single specimen before me, sent by Fendler without a label which I can not take for anything but a variety of this species with short spines, the central one mostly wanting: costis 9; aculeis robustis basi bulbosis, 5-7 radialibus brevioribus, centrali sub nullo. Spines 3-4 or 6 lines long; mostly light brown

β. pauperculus

~~Echinocereus~~ ~~No 2.~~

Fendler wrote: April 1847 from Santa Fe:

Cactaceae

1. (Mammillaria viviparum var.): Eastern mountains at a moderate height between fragments of rocks, Common on the road from Bents Fort to Santa Fe on hills and elevated prairies — never more than 2 inches high ~~2.~~ ~~Mostly~~ single, often in pairs, merely respitose from the ramifying root: — multiceps

= Fendleri

Echinocereus melanacanthus No 2.

ovatus, simplex s. e basi ramosus, costis 9 undulatis, acutis; areolis subapproximatis margine orbiculatis, breviter albo tomentosis; aculeis 10–12 radiabibus, ~~latent~~ ~~rectis~~ ~~albidis~~ ~~s. pallide fuscis~~ cinereis, laterali longioribus superioribus brevioribus, ~~maximum~~ ~~las~~ robustiori centrali singul. porrecto, recto s. leviter deorsum curvato, longissimo atro-fusco.

Higher region of the eastern range of Mountains near Santa Fe, between rocks (Fendler): — Perhaps a variety of E. conoideus, as Fendler suggests; but it appears to differ by the more continuous ribs, the more exactly radiating spines, with the very long and stout almost black central spine. — It has however the same unusually large areolae. — The only specimen in my hands is 2½ inches high and at least 2 inches diameter; areolae about 4 lines distant; upper radial spines 4½ – 3 lines, middle lateral 5 – 6 lines and lowest ones 3 – 4 lines long; central spine about 1 inch long

Echinocereus triglochidiatus. vide pag 35 Fendler No. 5

Quaery distinguished species — agrees well with my specimens from Dr W as described above, — I would only alter three point: the spines in this specimen are not straight, but more or less curved, often only slightly so; ribs acute, furrows very shallow

The specimen before me has 6 ribs, is 5 inches high 3 in diameter, areolae 12–15 lines distant; spines in 3 ½ or mostly in 4 ½ — 8–18 lines long —

Mammillaria viviparia var. Specimens collected by Fendler, globose, simple or slightly caespitose; spines stout. — Specimens obtained by Dr Wislizenus & Dr Lutty are similar.

globosa, simplex s. ~~multiceps~~ s. parce proliferum, tuberculis subteretibus, supra sulcatis, aculeis ex tomento albo demum evanescente ortis omnibus rectis radialibus ~~albidis~~ inaequalibus albidis ~~x~~ ~~centralibus~~ ~~plerumque~~ apice fuscis s. apice fuscis, 15–18–30 centralibus fuscis 3–6 robustioribus, 2–4 sursum 1–2 plerumque deorsum versis; floribus ex axillis tuberculorum horsum singulis rarius geminatis centralibus violaceis, sepalis ~~petaloideis~~ lanceolatis, nb. 25 arachnoideo fimbriatis, petalis nb. 30 lineari-lanceolatis acuminatis, integerrimis; stigmatibus 5–8 s. 10 (?) rubellis (obtusis?) staminibus paulo superantibus. baccis ovatis viridibus semimatibus obsoletis ~~sloptis~~ ~~pallide~~ fulvis, sordide-punctatis.

Specimens collected by Fendler, Wislizenus, & Lutty (seeds from the last) differ in the number of spines — All are only slightly proliferous, mostly simple, globose for 1 to 2½ inches diameter, tubercles in the larger ones 6 lines long; exterior

radiating spines 15 - 20, but mostly 20 to 30, interwoven, often weak, bristly, sometimes stouter, mostly about 3 - 5 lines long; ~~central spines~~ dark whitish sometimes with brown tips — central spines 2 or 3 but mostly 4 to 6 — some of the ~~three~~ directed upward, a few downwards, or one sometimes straight out, generally 5 - 6 or 7, sometimes even 9 lines long dark brown, light brown with dark tips or mottled whitish dark & light brown. — flowers 10 - 12 or 14 lines in diameter; purple; petals wider, shorter, not as long acuminate as in M. vivipara; sepals also apparently broader & shorter, stigmas not much exserted; probably obtuse (not cuspidate) apparently for 5 - 10; — anthers oblong, while in M. vivipara I find the shorter, oval and seeds paler and smaller than in M. radiosa. —

Mammillaria compacta pag 47. p. 213 floribus in vertice dense lanato centralibus; sepalis 17-19 lanceolatis acutis integris fulvis (brown) cantibus interioribus margine flavis; petalis (28) oblongo lanceolatis mucronatis, versus apicem denticulatis, staminibus ~~pallidis~~ sulphureis sulphureis, stigmatibus paulo exsertis ~~5-6~~ 5-7 cuspidatis flavicantibus

fl. July 1st — flower bud dark reddish brown the color of the calyx; petals sulphur yellow — flower about 15-17 15th lines long and of the same diameter when fully open — petals 1 3/4 lines wide and 6 lines long; stigmata 2 lines long — cuspidate — this is with M vivipara the only example of the kind known to me; — all others have obtuse stigmata (vide pag 59.)

20 June 1849 in full flower; again only one flower, ripe fruit of last year still adhering; flower 18 lines long; sepals 17 - 18

July 1850 with 7 flowers — the same character; apiculated stigmata quite remarkable

July 20 1853 with 4 flowers; sepals brown red; flower 16 - 17 l. long stigmata 5 - 6

Cactaceae 20 — 77

July 1848

x areolis obliquatis approximatis

see pag 123

Echinocactus intertextus n. sp. ovato globosus, costis 13 tuberculatis interruptis, obliquis, tuberculis supra ~~sulco~~ tomentoso-subcalij x roseis; aculeis radialibus diformibus, exterioribus setaceis sub-10 sursum versis, interioribus robustioribus, ~~longioribus~~ sub-12 rectis s. paulo recurvis, inferioribus brevioribus, superioribus longioribus aculeos setaceos superantibus; centralibus nullis porrecto brevissimo. — Seminibus hilo maximo uniformibus levissime ~~vermicoso~~-asperis. —

Chihuahua, Potts, no. 9 by Dr Wislizenus. —

A remarkable species, in some respects resembling a Mammillaria, in others an Echinocereus — evidently very near E. unguispinus, pag 37 & 21 it has the same tuberculated ribs with a tomentose groove (above each areola) on the upper side of each tubercle. — x) Outer setaceous spines only on the upper side of each areola 3-6 lines long, inner radiating spines above 7-9, below 4-6 or 7 lines long; central spine hardly one line long. — x) My specimen is 4 inches high and 3" in diameter, oval; spines interlaced, almost covering the whole plant. —

A few seeds were found ~~attached to~~ adherent between the spines. They are black slightly roughened, reniform with a large sinus at the hilum; albumen small, embryo curved, cotyledons rather small, accumbent. — The seed and embryo has decided me at once to place this species, which appears to differ so much in ~~shape~~ appearance from most Echinocacti in this genus.

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Aug. 1848.

The Echinocereei known to me at present might be subdivided in the following manner.

1. **Sulcati**; caule sinubus 10–24 parum inversis sulcato; areolis plus minus elongatis, aculeis radialibus plus minus pectinatis-connatis

1. E. caespitosus 13–18 sulc. acul. rad. pectinati central. nullis
2. E. pectinatus 18–23. sulc. acul. rad. pect. central 2–5 brevissim.
3. E. viridiflorus 13. sulc. acul. rad. pect. variegat. centrali 1 robusto s. nullo.
4. E. adustus (& radians) 13–15 sulc. acul. rad. pect. albidis adustis, centrali 1. robusto s. nullo.
5. E. dasyacanthus 17–18 sulc. acul rad subpectinatis; centralibus radiales sub-aequantibus plurimis, deflexis
6. E. infispinus. 11 sulc. acul rad adpressis, variegatis, elongatis centrali 1 robusto

2. **Costati** caule 4–10 costato; aculeis radialibus plus minus pectinatis, non pectinatis, areolis orbiculatis.

a. Aculeis plus minus teretibus

7. E. coccineus 9–11 cost. acul rad 9–10 centr 1. β. melanacanthus γ. cylindraceus
8. E. polyacanthus 10 cost. acul rad 10–12 centr 4
9. E. Roemeri 7–9 cost. acul. rad. 8 centr 1 rect.
10. E. Fendleri 9–10 cost. acul rad. 7. centr 1 curv.

b. Aculeis compressis angulatis.

11. E. enneacanthus 10 cost. acul rad 8. centr 1. rect.
12. E. triglochidiatus 6–7 cost. acul. 3–6 sub-curvati

Fruit of Cereus Jenkinsonii, a hybrid between Cereus speciosus & Phyllocactus phyllanthoides ripe at Goebels Garden St Louis. Aug. 1848

Bacca ovata, atrorubente apice contracta, umbilico parvo late marginato, infra sub six costato, costis supra ~~desinentibus~~; pulpis sub 13 breviter tomentosis setigeris; ~~seminibus~~ pulpa pulcherrime violacea, maxime succosa, edulis; seminibus umbilicalibus, obliquis;

seminibus obovatis basi acutiusculis, hilo lineari compressis nigris, tenuiter puncticulatis, albumine carnoso, embryone Mammillariae — unciniato cotyledonibus foliaceis ~~incum~~ ~~bentibus~~ plane s. frequenter oblique incumbentibus.

Cereus procumbens (vide pag 63) humilis perennis caule subterraneo, s. ~~rudi~~ 4+5 angulato, articulato, ramosissimo, tuberculis ~~aculei~~ ~~spinifer~~ distinctis, spinis 1. 4 vel 5 parvis, ~~aculeis~~ brevibus setaceis, areolis parvis orbiculatis, juniores albo tomentosis; aculei brevibus ~~tenuibus~~ albidis apice fuscis 6 radiantibus, centrali nullo s. singulo paululum longiore; obscure floribus vide p. ~~63~~ 49

On the lower Rio Grande, near Burita (Missouri Volunteers 1846) — Plant much branched, spreading, 3 to 5 inches high; joints or branches as in C. Deppii very contracted at base, 1½ to 2 inches long 6 lines in diameter; Tubercles not as elevated as in C. Deppii; 4 or 5 lines distant from one another — frequently — 4 rows, when the branch has a distinctly quadrangular appearance —, generally in 5 rows, when it look more cylindrical — spines short, radiate ones 1 to 1½ lines long 6, or ~~more~~ frequently (the upper most not being present) wanting 5 — central spine directed upwards, 1½ to 2½ lines long, stouter

Very near C. Deppii Dietrichii pag 17. but smaller, with shorter spines, etc — difference of flowers vide pag 63

3497

1849

Cereus Roemeri in flower May 24th; flower remarkably stiff, chartaceous, open day & night! — apparently very similar to the flower of Cereus Macrineus. —

floribus infundibuliformibus, (2" longis) limbo erectiusculo; (1" lato); sepalis ovarii et tubi 17 squamoso subulatis, in axillis in lana alba brevissima setas aculeiformes albidas 3–5 gerentibus; sepalis interioribus 8 ~~linearibus~~ ovato-oblongis acutis obtusis ~~submucronatis~~ albo-subcanis; petalis 10. obovato spathulatis ~~obtusis~~ integris, concavis, chartaceis, corrugatis, suberectis; staminibus numerosissimis abbreviatis, filamentis albidis versus apicem rosseis; stylo longe exserto; stigmatibus 7 petala aequantibus erecto patulis, ovarii viridibus, acutiusculis.

Petals 5 lines wide 8 or 9 l. long; stiff, concave, suberect; flower open day and night for at least 3 days

Bristles on the tube 2 or 3 lines long, mostly 4 or 5 in each axilla

flower remained open 6 or 7 days in cool and cloudy weather

Again 1 flower May 20th 1851 — sepals ovarii & tubi 16
sepals interior 7 petals 11 stigm. 6.
fl. 2 inches long

Mamillaria gummifera vide p. 41. flower open since yesterday — June 4th — open only in the middle of the day — and very similar to M. applanata

floribus ex axillis anni prioris ortis, rubellis ovario glabro, sepalis sub. 13 oblongo linearibus obtusiusculis fimbriato-erosis, petalis 16 lanceolatis, cuspidatis s. breviter acuminatis ~~crenulatis~~ denticulato-erosis — stigmatibus 6 staminibus brevia rubella longe exsertibus, petalis subaequantibus viridibus.

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GEORGE ENGELMANN PAPERS

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Flower about 1¼ inch long 3/4 to 1 inch wide when fully open; brown red outside, petals whitish or reddish white with a dark red central band or streak.

Flower similar to that of Mam. applanata, but somewhat larger, much darker and elegantly coloured; sepals (or outer perigonial leaves) obtuse, and fringed (not acute and entire, petals more abruptly acuminate; stigmata green, and almost as long as the petals, while in M. appl. they are much shorter.

June 30th Opuntia macrorhiza in flower since a few days — Description of plant when I have more leisure. Leaves subulate about 5 lines long; spines white with brown tips often fourth, reflexed, several or none, longest hardly one inch long. —

Ovary 15 lines long, 6 lines in diameter at top, about 13 laciniae — or outer sepals, covering it with very short brownish bristles in the axills

15 — 18 inner sepals, on the top of the ovary, the outer ones subulate the intermediate ones herbaceous acuminate, the inner petaloid, ovate acuminate, with herbaceous ribs, all shorter than the petals. Petals about 8 broadly obovate spathulate, obtuse, cuspidate, erose-denticulate, yellow, red at base in in the centre.

Stamina numerous, yellow, as long as the style and stigmas. Stigmas 5, obtuse, erect, connivent, 2½ lines long.

Flower 3 inches in diameter; petals 1 inch wide or more 1½ inch long.

Opuntia macrorhiza Engelm. prostrata; articulis obovato-orbiculatis, planis; pulvillis setis fuscis et saepe aculeis singulis binisve instructis; aculeis validis porrectis s. paulo deflexis, basi fuscis, dein albidis, cum adventitio superiore gracilior deflexo, saepe deficiente; globis ad margines articulorum singulis; ovario sepalis subulatis 13 in axillis setulas fuscas brevissimas gerentibus stipato; sepalis interioribus 15—18 subulatis (internis ovatis acuminatis; petalis 8 sepala superantibus late obovato-spathulatis, obtusis cuspidatis erose denticulatis; stig. 5 obtusis erectis adpressis, staminibus numerosis vix superantibus s. aequantibus

82 bacca subpulposa clavata, glabrata, semribus marginatis.

Rocky rocky places of high prairie, Upper Guadalupe. — Root large and fleshy; joints prostrate, 3–4 inches long abt ½ inch less in transverse diameter, hardly attenuated at base, ~~spines~~ areolae on the flat sides of the joints 3/4–1 inch distant, more crowded towards the base and on the edges; spines spreading, sometimes slightly curved, 1 inch or smaller ones 4–6 C. long ~~4–6~~ present; ~~fruit~~ 1½ inch long; seed large, 2½ lines diameter, strongly marginated.

Cereus (Echinocereus) ovato-cylindraceus, subsimplex, 18-sulcatus; areolis lineari-lanceolatis, maxime approximatis; aculeis centralibus nullis; radialibus tenuibus, rigidissimis, patentibus 25–28, summis brevissimis, infimis paulo longioribus lateralibus longissimis (3–3½ l. longis) albidis.

From Sillillo to Mesillos, Dr Gregg.

2 inches diamr 3½ high. — I can see no difference of this and the Texan C. caespitosus.

Opuntia Lindheimeri erecta, robusta, caule lignoso, articulis ellipticis magnis (9–12 poll longis 5–7 poll latis) ~~planis~~ basi attenuatis, planis; pulvillis remotis, ad margines solum confertioribus, x gracio tomentosis, setis flavidis pendullatim collectis aculeisque paucis instructis, 1–3 ~~x~~ compressis, validis, vaeie divergentibus sed praesertim deflexis, ~~straminis~~ saepe, nunc cum 1–2 aculeis adventitiis gracilioribus; ~~f~~ —

~~Bacca~~ clavata elongata subpulposa, glabrata; semribus late marginatis. Plants erect, often 6–8 feet high

About 10 branches, stems lignous, covered with an ashy gray bark, often 6 inches in diameter; ~~and~~ wood very light and spongy; areolae 1½–2 inches distant on the face of the old joints, rejected joints. — Bristles 1–3 lines long; spines all pale yellow, slightly and indistinctly annulated, various, ~~sometimes 3 are equally long, or one is longer and 1 or 2 are smaller — or~~ four ½–1 inch long, 3 longer spines together or one or 2 longer ~~spines~~ with 1 or 2 shorter spines etc. all more or less deflexed.

Fruit purple similar to that of O. vulgaris, but longer 2–2½ inches long, narrower (with a deep umbilicus) 2–2¼ C in diameter, not numerous.

Near O. Engelmanni, but easily distinguished by the narrower joints, entirely yellow spines and longer narrower fruit with larger seeds.

Young plants raised from the seed have in the lower areolae a quantity of long coarse hair; spines at base.

Gordon.

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Opuntia Engelmanni Salm erecta, elata, articulis orbiculato-obovatis, planiusculis, pulvillis remotis, ad marginem confertioribus, griseo tomentosis, setis flavidis pauciillis collectis aculeisque paucis compressis, auripilibus distinctis, 1–4 validis saepe inaequalibus plusminus deflexis vario divergentibus, ovati rufis apicem versus stramineis cum adventitio infimo graciliore deflexo albido saepe deficiente, fl — Bacca ovato ~~subglobosa~~ & late umbilicata, pulvillis planiusculis tomentosis stipata; seminibus minoribus angulatis marginatis.

Chihuahua, & Westligenen. — Erect 5–7 feet high, at north towards El Paso native and cultivated

Older joints 12 inches long, 9 broad; pulvilli 1½–2 inches distant; bristles 2–6 l. long; spines 1–1¾ inches long; very stout, reddish brown at base ¼ or ⅙ of their length, the rest yellowish or even whitish; Fruit oval, or subglobose 1½–1¾ inches long, and nearly 1½ inch in diameter; umbilicus large (10–11 lines) and flat; pulvilli about 5 l. distant; pulp red; seeds very numerous, about half as large as in O. vulgaris 1½–1¾ l. in diameter, very irregular

There is a similar or the same species about the mouth of the Rio Grande and on the sandy islands at the Brazos; Unfortunately I have no specimens But the fruit and seed resembles the Chihuahua plant very much; Fruit reddish (pulp purple) ¾ inch long, 1½ in diameter; umbilicus flat 1 inch wide, pulvilli about 9 l. distant; seeds considerably the same.

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see pag. 339

Opuntia setispina caule humili? articulis obovato-obovatis (2 pollicaribus) compressis, glaucis, pulvillis confertis, prominulis, tomento griseo setisque flavidis numerosis pulvinatim convexis, omnibus aculeiferis; aculeis inaequalibus, junioribus stramineis, demum cinereis, 3-7 brevioribus (3-6 linearibus) et 1-3 longioribus (semi- ad sesqui pollicaribus) omnibus compressis gracilibus, flexilibus, nec non acutissimis, deflexis. —

Coriquiriachi in Pine woods. — Dwarfish. The plant before me, was a seedling 1846, is therefore now 4 years old, but still very small, about 5 inches high, still erect. Largest joint 2 inches long 1/2 wide; pulvilli in the 4 lines distant; bristles in the older joints 2/12 l. long.

Mammillaria barbata vide pag 18. A young plant raised from the seeds coll. by Dr Wislizenus in Octob 1846 near Coriquiriachi, now a little better than 2 years old, about 1 inch high, and the same diameter, globose, flowers for the first time — 2 central flowers (June 25 1850) ex axillis tuberculorum hornotinorum sub-floribus centralibus, ovario glabro ~~nudo~~ exserto! (i.e. ~~sepalis non stipata~~, ~~nec~~ corpori plantae non immerso!!) sepalis petalis ~~subconformibus~~ lanceolatis, acutis, sepalis 15-18 ciliato-fimbriatis (fuscoumbrini, albido marginatis) petalis circ. 25 angustioribus, integris (roseoalbis, margine pallidioribus; stigmatibus 5 obtusis exertis; staminibus numerosissimis longe superantibus petalis brevioribus.

flower about 8 l. long and 8-9 in diameter open in bright sunshine, in the middle of the day; petals about 3/12 l. wide stigmata ~~not more than~~ 1/3 scarcely 1/12 l. long. Flowerbuds central, but at the time of the flowers opening, they are already pushed aside by younger tubercles, very much like M. radiosa, vide pag 64

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Examination of Cactaceae of Chas Wright
Gray and others, July 1850

Echinocactus There appears to be a section of this genus characterized by many peculiarities, which may be called the Uncinati but probably in a different sense from that Section of Salm Dyck. Vide pag. 108

E. setispinus appears to be the type of this section and the smallest at most northern form: the type only because it the best known of all these species

They have terete or flattened spines, the central spine curved or hooked at apex, sometimes more or less flexuous, lateral or radial spines mostly straight or sometimes also hooked; from a more or less circular or axe elongated areola. Spines smooth or sometimes annulated. —

Flowers probably always produced throughout the season, in succession, and therefore ripe fruit and flowers often on the same plant

Tube of flower mostly slender, more so than in other species of this genus covered with roundish ~~auricu~~ lated ciliate or fimbriate, thin membranaceous sepals.

Fruit covered with thin membranaceous, almost evanescent scales (auriculated, fimbriate), mostly fleshy or juicy, ~~red~~ (sometimes yellowish and dry) seeds mostly small, rough, tuberculate, punctulate or smooth.

The hooked spines and the thin auriculated scales appear characteristic; also the fleshy fruit, but E. Wislizeni appears to belong here, has however a dry fruit, densely covered with imbricated scales of a stiffer texture.

Mr Wright has found several species which evidently belong here. The specimens are unfortunately incomplete.

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Areolis plus minus obtuliatis costis ~~teretibus~~

1. E. unguispinus Engelm: in W. Report note 48. — Though in habit somewhat different, this species appears to belong here on account of the fleshy scaly fruit. — It may be however that the fruit collected by Dr Gregg belongs to a totally different species, perhaps to E. ancistrosus coll by Wright, which probably belongs to E. uncinatus! The central spines of E. unguispinus are curved, but by no means hooked. —

3. E. setispinus Engelm.

2. E. ancistrosus n. sp. globosus, a yoz E. uncinatus, v. de pag 113 costis 13 obliquis compressis, interruptis areolis obtuliatis; aculei ~~spinis~~ tenticularis flexilibus demum cinereis apice fuscis 4-5 robustis radialibus 7-8 superioribus deflexatis, inferiorbus flexuosis 3 uncinatis; centrali longissimo, flexuoso, uncinato. fl. sepalis inferioribus membranaceis late cordatis acuminatis, ~~fimbriatis~~, superioribus oblongis obtusis, albo marginatis, omnibus fimbriatis.

— Wright 1849 between San Antonio & El Paso

The specimen before me is ~~small~~ evidently ~~a~~ young and small, about 1½ inch high and of the same diameter. — Radial spines 6-12 lines long, the upper longer, the lower shorter but stouter and ~~recurved~~ hooked (by which this species is readily distinguished from all others known to me) — Central spine about 2 inches long in my specimen, much curved or twisted, and hooked at the end. — ~~Northern~~ flower a little over an inch long. —

It is not impossible that Gregg's fruit collected near San Lorenzo (Dolson de Mapimi) as mentioned in W. Report. Note 48. belongs here and not to E. unguispinus. — It is fleshy with tuberculated rough seeds. compare E. uncinatus Salm p. 153

4. E. flexispinus E. in W. Rep Note 47

Areolis oblongis s. elongatis.

5 E. Wrightii n. sp.

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1852 I find without any doubt that the flowers are of the growth of the same year 15 87

Cereus (Subgenus Echinocereus) **Ottonis** Schm (Echinocactus Ottonis Lehm) lucte viridis depresso-globosus, vertice nudo depresso; s. simplex s. e basi proliferus sub 12 costatus, costis obtusis; areolis ~~impressis~~ orbiculatis immersis; ~~areolis~~ aculeis radialibus tenuioribus e flavo albidis sub 15 centralibus sub 4 recurvatis, omnibus minore, infimo lateralibusque longioribus, radiales superantibus.

No! florens ex anni prioris areolis ortis; ovario ~~areolis~~ pulvillis sub 40 stipato, lanam albidam et setas ~~infra~~ fulvas infra paucas brevissimas, supra plurimas elongatas gerentibus; — sepalis ~~interioribus~~ interioribus petalis (flavis) stigmatibus 13 recurvatis ~~subbillis~~ nubigis; bacca vate viridi, irregulariter dehiscente; seminibus numerosissimis, digitaliformibus, nigris, opacis, minute tuberculatis.

Flowers, June & July, fruit ripens in August; can not be distinguished from the fruit of a true Echinocereus; green, splits open, ripens in a few weeks; and more than all, the ~~seeds are rough &c~~ almost globose seeds have the embryo contrary like all true Cereus though it is sometimes oblique, which I have also seen in some other Cereus. — Embryo almost globose, somewhat oval; ~~radicle~~ obtuse thick, more so than in any other examined by me. It is not easy to examine the embryo on account of its shape; the direction can be only well ascertained by the situation of the thickened part of the membrane, representing the albumen the cotyledons are opposite or contrary, ~~and~~ and oblique not parallel, as the Echinocacti are:

albumen (1) top view (1) top view (1)

July 1851

88 found by the Mission volunteers in the southeastern parts of New Mexico 1847. — Name, indicates that it has a smaller number of spines than any other of the Cactiflorae known to me. June 1852

Mamillaria meiacantha n. sp. flowered since May 31st

fl. ex axillis tuberculorum anni prioris nudis, albido-nubilis ovario glabro, sepalis 12-14 lanceolatis, petalis 15-16 lineari-lanceolatis acutis subintegris; stigmatibus 6-7 stamina brevia vix excedentibus, viresculi flavis obtusis.

Flowers 12-13 l. long somewhat erecolate, when not fully open; exterior petals longest, entire interior ones slightly shorter entire or superficially denticulate, acute not mucronate; all whitish with a broad roseocolored line in the centre.

Difference from M. applanata (vide pag 98 & 16) flower larger, deeper and purer colored, petals mostly entire, acute not mucronate; stamina not half as long as petals (in M. ap. about 2/3); style as long as longest stamen (in M. ap. longer) stigmata thicker, reaching to about 2/3 of petals; (in M ap. not much shorter than petals)

Ovary has no lactiferous fluid, and in removing a flower it exsudes only if the neighboring tubercles are wounded.

Description of plant: lactiflora, simplex, subglobosa, depressa, tuberculis quadrangulatis-pyramidatis, compressis; axillis nudis, areolis juvenibus albido tomentosis, senioribus nudis; aculeis rectis, s. leviter recurvis, radialibus sub 7 inferioribus longioribus summo nullo, centrali s. infimo solitario inferioribus brevioribus sursum versum, omnibus albidis, apice sphacelatis, demum cinereis.

Specimen before me 3 inches in diameter & height; tubercles in 13 or 21 spiral rows somewhat compressed from above; spines 3-5 lines long, straight or especially the central one somewhat curved. There are usually one 6 spines and the central spine appears as an upper radial one, but in the fully developed specimen it is distinctly central, though directed upwards, and is the stoutest of all.

vide pag 103.

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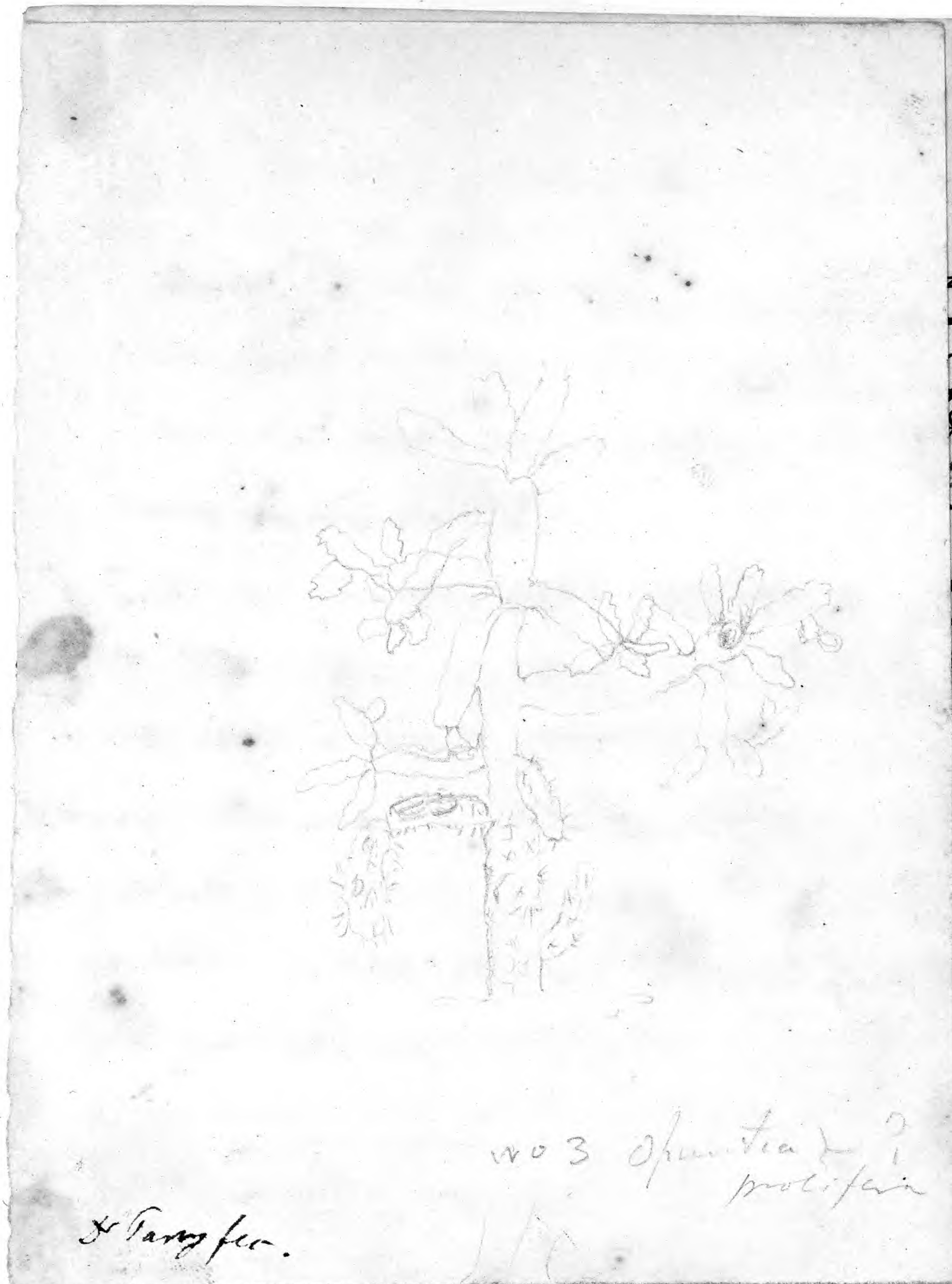

W03 Opuntia ? prolifera

& Tangier.

high if flower red 1/2 inches

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Cactaceae noticed and described in connection with the Mexican Boundary Line survey from San Diego to the Colorado 1849 - 1850 by C. C. Parry

Description arranged and systematized by J. E. 1851.

Opuntia

A. Applanatae

O. occidentalis E&O.

1. Opuntia Engelmanni Salm vide N. Lindh. in Boston Jour VI.207

Caule 4-6 pedali patulo-ramosissimo Salm, Cactear, 1850 p. 235

articulis orbiculato-obovatis, basi angustatis;

pulvillis setosis aculeos paucos compressos, transversim

notatos pallide fuscos, inferiores validiores

deflexos gerentibus; sepalis (extus rubellis) late ovatis cuspidatis

~~mucronatis~~, petalis (virescenti flavis) obovato oblongis s. spathulatis

mucronatis; stylo staminibus breviore,

(rubello) stigmatibus 10 radiatis. baccam

obovato ~~subglobosa~~, late profundeque umbilicata, pulvillis plurimis setarum ~~setulosis~~ aculeatis;

seminibus plurimis.

see pg 296.319

San Diego, Dry Hillsides & plains; ~~Growing~~ in patches. — Stem 4-6 feet high; joints 6-8 inches long and 4-6 broad, ½ inch thick. Flowers larger than those of O. vulgaris; externally red, inside greenish yellow. Fruit 2 inches long and 1½ in diameter reddish purple. —

Number and length of spines, & colour of bristles is not mentioned. —

Only the slender ~~bristles~~ bristle spines on the fruit appear to distinguish it from O. Engelmanni; compare however also O. phaeacantha E. in N. Fend (North Fe), but that has a prostrate growth in a more northern mountainous country and a pyriform fruit. — The flattened, brownish deflexed spines, somewhat transversely marked, and the large broadly umbilicate largely obovate fruit with numerous small seeds is characteristic for these plants.

2. <u>Opuntia Tuna</u> Mill? erecto, ~~elato~~ elato (10-15 pedalis); articulis obovatis, glaucis, ~~pulvillis~~ setas fuscas et aculeos brevios minores albidos 2-4 inferiores ~~dept~~ longiores deflexos gerentibus, s. nudis; sepalis obovatis, petalis obovatis emarginatis, laceris; stylo stamina paulo superante, stigmatibus 8 erectis ~~pallide~~ virescentibus; baccae junioris tuberculata areolis ~~albidis~~ (~~non spinulo~~; maturae late (pyriformi-) obovata, purpureae sublaevi.

Cultivated for fences and naturalized (?) about the Missions; called Tuna + Stem often 6 inches diameter; joints 8 inches wide 12-14 long. Fruit obovate, 2 inches diameter, of pleasant taste! —

7. Flowers throughout the year

spines 6-9 lines long sometimes somewhat spiny

Opuntia Tuna, O. Pseudo Tuna, O. glaucophylla and O. ficus indica appear very nearly related, and are perhaps not sufficiently distinct. The form described here appears rather intermediate; it is less spiny than Tuna is described, and more so than Ficus indica and Pseudo Tuna. —

Colour of flowers and shape of spines is not mentioned; O. Tuna is described with red, ~~but the variety β Gemmiflora~~ and with yellow flowers; ~~and~~ O. glaucophylla ~~Wndl~~ Wndl might be ours — except of the colour of the joints — but the bristles of areolae as well as spines are pale yellow. —

B. Cylindrica

See pg 300

3. Opuntia prolifera n sp caule lignoso divaricatissimo erecto arborescente, ramis horizontalibus articulis ~~cylin~~ ramorum versus apicem subverticillatis ovatis s. ovato-cylindraceis tuberculatis, ~~sensim~~ ~~cylin~~ aggregatis fragilibus tuberculis oblongis proximalis ovatis areolis albidis ~~fructibus~~ ~~albidis~~ vetustioribus ~~flavidis~~ straminis setosis, ~~margine inferiore~~ aculeis 8-10 fuscis obscuris centrali singulo superioribus radentibus ~~porrectis extenioribus minoribus radiat~~ membranaceis vaginatis majoribus (pollicaribus) radentibus infimis brevioribus ~~inferiores deflexos gerentibus~~ flore rubro, squalis late-ovatis, petalis oblongis-ovatis stigmatibus in capitulum congestis stylo stamina superante, ~~in~~ baccam ovata umbilicata, areolata ~~aculeata~~ saepissime prolifera et per seminum abortum sterilis

On arid hills about San Diego, Family near dried up streams forming extensive & impassable thickets. at last in the old rot stems Denser

See pag 300 # Stem of 2-3 inches diameter 3 to 10 feet high if flower red 1/2 inches in diameter, (weed forming a rotting tube, in fields) salverform ~~with the dry dried~~ ~~to O. arborescens~~ ; petals smaller darker than in O. arbor. ~~Number or length of spines not mentioned~~ 2-2 inches in diameter

Evidently near O. arborescens of N Mexico — but that has larger flower globose deeply umbilicate ~~spiny fruit~~ smooth fruit also near O. ~~[illegible]~~ This has hemispherical tubercles with slight alveolate pits etc. If it was not for this difference in the fruit I would consider them identical.

Small Specimen before me (one joint) ~~smaller~~ 2 inches long 10 lines diameter — tubercles 1/2 inch long; spines in the upper tubercles 8-10, with a few smaller bristly spines on the edge of areolae, spines from 6-14 l. long, brownish.

4. Opuntia serpentina n sp (cylindrica) ~~caule lignoso~~, + articulis elongatis subprostrata v tuberculatis; tuberculis prominentibus + ramis paucis divaritis ovatis, areolis apice albido-setosis margine inferiore aculeos 7-9 albidos s. rufescentes membranaceo-vaginatos v porrectos, infimos deflexos gerentibus; floribus — see page 299 flavo-fuscis subhemisphaericis baccis sicca v, late et profunde umbilicata, flore emarcido subpersistente, saepe convoluta, aculeatissima, ~~longque~~ villosa ~~[illegible]~~;

Dry Hillsides near San Diego. nearer to the seacoast than the other San Diego species of Op. (Op. prolifera) points long and snakelike

Stems ~~tub~~ prostrate lignous 1/2 inches in diameter v lower spines deflexed closely upon the older branches. Fruit saucershaped. Seeds large whitish.

~~Colour & length of spines, Flower & size of fruit~~

~~Size of plant~~

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not mentioned. The manuscript leaves it rather indistinct whether the remnants of the flower or the fruit is "thickly set with spines and long wool".—

tesselata

5. Opuntia ramosissima n.sp. Prickle

Lignea erecta, ~~ramosissima~~ divaricato-ramosissima articulis granulibus, cylindricis, tuberculis coesis tubercularibus oblongis rhombeis parum prominulis; areolis linearibus, ~~spi~~ aculeum singulum cum uno alterove adventitio minore ~~[illegible]~~ sæpe sæpe abortivis; sarcato-vaginatum media purpurascentem, transverse rubrum gerentibus; flore . . . .

Bacca sicca oblonga-pyriformi, vermicoso-tuberculata, setosa et retrorsum aculeata apice squamulosa, seminibus paucis (4–5) magnis pubescentibus, sæpe abortivis.

On gravelly soil near the Colorado River and in the desert. Bushy, about a foot high, spreading of formidable appearance from the densely crowded spines; stem young 9 lines, joints 6 lines in diameter, the latter 3–8 inches long; tubercles 3–6 l. long, large for the size of the plant, arranged in 4–6 spiral rows; spines 1½ inches long; sheath oblong whitish below, straw colour above.† This is the most slender of all the tuberculate ~~cylinder~~ Opuntias cylindraceæ, and appears to approach to the grandiflores (v. suffruticentes); but not only the tubercles but also the openly retroflexed fibrous lignescens tissue

stem young ~~joints~~ × covered with a nearly blown

† fruit 6 lines long and 2½–3 in diameter.

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of the stem characterize it as belonging to this section

6 Opuntia Parryi n. sp. see pag. 356

caule cylindrico prostrato; articulis ascendentibus sub brevitibus; tuberculis oblongis, areolis albidos setas fuscas et aculeos breves, rutilem ~~albidum~~ angulatum gerentibus; floribus (viresenti flavis) ex apice articulorum sepalis bracteiformibus acuminatis, petalis obovatis (cuspidately?) acuminatis; stylo stamina superante petalis subaequante, viridi, (stigmatibus radiatis); baccae oblongo-subglobosae late umbilicatae, ~~tunicis~~ aculeis olig gracilibus stipatis.

Hills and plains on the eastern slope of the California Mountains, near San Filipe, forming patches 2 or 3 feet in diameter; joints 4–8 inches long, 1 inch in diameter; tubercles ½–1 inch long; larger spines only ½ inch long. + — This species appears to form a connecting link between the true Opuntias cylindraceae tuberculatae and the elatae; these latter are in fact only prostrate forms of the former with elavate joints. — Number of spines and their shape, and whether sheathed, ~~single~~ or flattened, is not stated. —

+ flowers greenish yellow 1½ inches in diameter

II Cereus

1. C. ~~aculeatissimus~~ Emoryi n. sp.

caule cylindrico, 2–3 pedali, prostrato, ramis ascendentibus 15-~~angulatis~~ costatis; costis subtuberculatis sinubus acutis; areolis conferti, ~~approximatis~~ ~~aculeis~~ albis; obtusulatis; junioribus flavo-tomentosis; aculeis rectis e ~~pluribus~~ albis flavis numerosissimis, stellatim patentibus, radialibus 40–50 tenuibus ~~brevibus~~, centralibus ~~2 pollicaribus~~ 4 robustis 2-pollicaris, ~~porrectis~~ ~~albis~~ flavis; flore subterminali flavo, tubo brevi; baccis globosis ~~pubellis aculeiferis~~ aculeatissimis ~~dense stipitatis~~, floris nudimenti coronatis; seminibus nigris ~~lucidis~~ magnis obovatis acute carinatis, hilo acutis

Growing in thick masses, covering 10 or 20 square feet; the only cereus seen by the Party on the ~~Pacific~~ side of the California Dry hills & near the coast Mountains near San Diego. — Prostrate (DeCost) never north of the bounding line

stems 2–3 feet long, ascending branches 6–9 inches long, 1½ inch in diameter; fruit of the same diameter, on the sides or near the summit of the branches crowded or solitary; — ~~It is not stated whether the stem is rooting.~~ prostrate covered with numerous pubescent each

[Never north of the bounding line DeCoste]

being 20 to 25 small stamens and 1 to 3 long yellow spikes of very different size, the 3 are stouter, of over 1 inch long, the others are setaceous but stiff, 2 to 6 lines long; seeds about 1.2 l. long with very sharp sinuses and linear hilum; indistinctly tuberculate

adjunct none, corolla long & hooked, — those of a true Cereus. p. 421

2. C. Engelmannii C. Parry mss.

caulibus e radice subterranea pluribus erectis pedalibus 13 angulatis; ~~pallide~~ costis tuberculatis, ~~sulcis~~ sinubus latis virescentibus; juvenilibus brevissime tomentosis; areolis albis; ~~radialibus~~ centralibus 4, infimo longissimo deflexo, ceteris versus latera porrectis; aculeis radialibus (10–12) brevioribus tenuioribus; floribus ex axillis ~~ex superiore vicinis~~ superioribus ~~aphyllis plerisque~~ ortis

baccam oblongo, subglobosam, floribus (rubris)
mediantis coronatis; pubellis brevibus spinulosis
stipitata, ~~minutis~~ s. aculeatissima; seminibus ~~ovatis~~ obovato-oblongis compressis ~~fulvo-albis nigris~~ nigro-castaneis sordide albis nigris

Mountains about San Felipe, eastern declivity of the Cordilleras of California. — Stems 6–12 inches high. 2–2½ inches in diameter; ~~fruit~~ central spine longest spine 1½ inch long. Fruit 1–2 inches long and 1–1½ in diameter, skin thin pulp pink or white of a luscious taste. — Seed O.V. P.C. — ~~Approaches the Section Echinocereus, though the Cacti flesky fruit appears to distinguish it from the other species known to me, which all have small green or bluish dry berries~~

see page 288

compressed, carinate on lower part of back, irregularly tuberculate tubercles confluent and leaving pits between them, hilum oblong.

Nuttall's Cereus californicus = Torr & Gr. is probably one of the Cylindrical Opuntias, flow small yellow"

III. Echinocereus

see for more complete descr. pg. 189

1. E. viridescens Nutt. globosus s. costis 21 ~~depressus globosus~~, ~~profunde~~ 21 ~~costatus~~; vix tuberculatis ~~axilis ovatis~~ vertice depresso tomentoso; areolis ovatis tomentosis; aculeis recurvis, radialibus 18–20 minoribus, centralibus 4 longioribus, plus minus compressis, transversim striatis ~~annulatis~~, perpendicularibus 2 longioribus 1/2 sesquipollicaribus, virescentibus e rubello latentibus 2 brevioribus; + petalis oblongo-ovatis, versus apicem crenatis, ciliatis; stigmatibus 12 (flavo albidis) coccineis brevis globoso s. ~~ovato~~-globoso-ovata, virescente, (floris rudimentis coronata), squamis lanatis membranaceis adpressis stipitatis ~~stipitatis~~. seminibus nigris lucidis ~~tuberculatis~~ foveolatis

+ sepalis ovatis ~~extus~~ lanatis ciliatis

San Diego, on dry hills and ridges.
Needle size about 6 inches diameter by 6 inches high

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but in a favorable locality the specimen was seen to fack high in circumference; often wounded crippled or burned down by fire it forms many heads and sometimes large piles of prickly balls. — flowers 1½ inch long 1¼ in diameter and (according to Nuttall) greenish yellow; fruit bluish green ¾ inch in diameter. —

Nuttall says the petals are linear-lanceolate Parry: oblong-ovate.

This species is in appearance evidently near E. Texensis; also near E. platyacanthus of Mexico, one of the giant Cacti; but is quite distinct on account of the lunate scales on the ovary which approach it to E. setispinus and ~~therefore~~ its relatives. It is no doubt Nuttall's plant, though he describes it as a foot high, and 9 or 10 inches in diameter. — An Echinocactus, California Mons. is mentioned by Seler, but no description given, because too young yet — whether our plant? — if so, Nuttall's name published 1840 has preceds.

2. Echinocactus viridescens Nutt

see page 183

β. ? cylindraceus

vertice tomentoso.

~~25–29 costatus~~

globosus, demum cylindricus, costis 25–29 parum vertical. s. ~~subobliquis~~ obliquis ~~F. Julibisantes~~ ~~F. subtuberculatis~~ ~~+ pimiscitus sordide rubellis~~ ~~+ longioribus~~ albidis, + brevibus tomentosis, aculeis centralibus 4 longioribus, ~~inferiore~~ gracili longissimo 2 pollicari ~~capite recurvato~~ compresso, annulato; flore — [Corolla pallide virescente squamis semilunatis fimbriatis-ciliatis stipata, floris (flavescentis) rudimentis coronata.]

according to Parry — is this not a hybrid

Dry Rocky ravines near San Felipe eastern slope of the Cordilleras of California. — Young plants globose, when older somewhat cylindric, largest about the ~~centre~~ middle, the very large specimen measured 2 feet 10 inches in height and 3 feet in circumference. [Fruit 1 inch long pulpy.

in smaller specimen 13
in large 21–29 ribs

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Evidently very near E. wislizenii, and from the date given by Dr Parry hardly to be distinguished from it, unless by the cylindric shape, the somewhat longer spines, and the habitat, east of the Mountains. Shape of seeds, or number of central spines not mentioned. —

III Mammillaria

1. M. tetrancistra ~~s. californica~~ see pg. 179

globosa ovata v. breviter cylindracea; tuberculis subcylindricis semipollicaribus; areolis radialibus numerosis longitudine dorsalis, brevibus, (n.612 Parry in Cat) centralibus 4 v longioribus v. plerisque centralibus, floribus parvulis, obconicis; ~~centralibus~~ petalis lanceolatis, acuminatis (flavidulis ~~nunc~~ apice bilobo v. resecto medio rubellis); stigmatibus ~~3 v. 4~~ stamina excedentibus, corolla subbrevior; baccae v. oblongae, elongatae, pyriformis, elevatae, pulposae, corolla rudimentis destitutis; seminibus (scilicet nigris) nigrosis, hilo spongioso fuscis.

Dry gravelly hills about the base of the Mountains east of the California Cordillera; also near the junction of the Gila & Colorado rivers; also in dry ravines near San Diego — Varies much in size & shape, from subglobose to cylindric; 3 to 5 inches high by 1 – 2½ in diameter; spines ~~strongly hooked~~ being made ~~whether it is of~~ its being prolifferous or not we are permitted to assume the latter. interlocking and entirely covering the plant; 4 central spines ~~hooked~~ 3/4 inch long; flowers ½ to 3/4 inch long, ½ inch diameter, immersed between the upper spines; young fruit subglobose or pyriform, at first with the redness of the flower, which, falling off leaves a deep small umbilicus; at maturity the fruit elongates to one inch in length; with a diameter of ½ inch. Seeds large ~~appear~~ visible through the

see
~~Hilum large, spongy, brown~~

red

this pericarpium; attached to the conspicuous white umbilical cord funiculi (chordæ) — Evidently near M. apostrophes and M. coronaria but distinguished from these and similar ones by the regularly hooked outwater spines; still nearer approaches the new M. Goodrichii Scheer Pacific Salem Cact. — Hort Dyckens coll. 1850 pag 91 — ~~collected~~ found on the island Cerros in California — but in this two only the lowest central spine, ~~straighter than~~ longer than the 3 others is hooked; radial spines 12; ~~M. coronaria has also only~~ tubercles very small, ~~hidden by~~ almost quadrangularly compressed; hidden by the numerous spines. — M. apostrophes Lem. has also only 3 very short stigmata.

Some seeds collected by Dr LeConte without any doubt belong here. The traces of the fruit are blackish; the seeds oval, 1.2 l. long, 0.8 l. in diameter; half ~~black~~ mucilose, tuberculate (the seed proper) and half light brown, also mucose (the spongy hilum)

* next page) yellowish, ~~[illegible]~~ they as well as the central spines get gray or whitish retaining only the dark tip

see pag 146

Wright's Cactaceae

var.? M. Wrightii

Mamillaria Scheeri Muhlenpf. in Salm Hort. Dyckens. 1850 p. 133 (S. valida)

robusta, ~~magnimamma~~, ovato-~~cylindrica~~ globosa, simplex (~~an semper?~~), axillis latis juvenilibus tomentoso lanatis, ~~mamillis~~ subcrassis laxis ~~glaucescentibus~~, remotis magnis e basi lata ~~subcylindricis~~ supra sulco profundo ~~supra sulcatis~~ ~~sulcatis, sulco lanato~~ glandulis simplis plurimisve munito, junione lanato, subbilobis areolis orbiculatis juvenilibus, dense lanatis demum nudis; aculeis 18–20 rectis, robustis (basi bulbosis) ~~rigidis~~ ~~rectis~~ ~~albis~~ ~~citrino~~ ~~citrino albis~~ ~~exterioribus~~ ~~omnibus~~ versus apicem ~~brunneis~~ ~~fuscescentibus~~ atro purpureis; radialibus 9–16 (3–5 inferioribus lateralibus quoque robustioribus, compressis, equilongis) 7–11 superioribus debilioribus ~~tot~~ tenuioribus, centralibus 1–5 validis angulatis, ~~flavis~~ ~~flavescentibus~~ ~~albis~~ (subulatis, ~~albis~~ ~~flavis~~ ~~albis~~ ~~flavescentibus~~ ~~albis~~ ~~albis~~ ~~albis

100 & small young specimens have smaller tubercles, and about 8 r. spines 6–9 l. long with one straight or recurved much stout central one 1 inch long.

Flowers 2 inches long, yellow, very ~~[illegible]~~ 5–6 lines long. Young

Perhaps not distinct from Mr Scheer's Mule, from Chihuahua, though this ~~is~~ said to be globose, 3–4 inches in diameter, with ~~[illegible]~~ naked areolae (in our plant only in the old ones naked) 1 very long central and 8–11 much shorter radial spines; ~~the dense cottony wool in the young axillae is not noticed~~. It is near M. macromeris as Prof. Sch has correctly placed Mr Scheer's What is M. Scheeri Coulter p. 522?

See pag 146

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Cereus gigantea. Eng. vide pag 56 & 57.

Dr C. C. Parry has observed this plant spring 1852 and has carefully examined and described it in a letter to Prof. Emory which has been kindly communicated to me.

Excelsus, status, simplex s. parce ramosus ramis erectis, culmen centrale cylindrico versus apicem semsim attenuato brevioribus; × costis ~~infra~~ adhaesis 12, versus apicem 18–20 rectis; areolis ~~[illegible]~~ subobtusis ~~[illegible]~~ (versus basin obtusissimis) subcrenatis, sinubus profundis, angustis. Areolis prominentibus orbiculatis albido tomentosis; aculeis pectinatis radialibus 17–17 setaceis brevioribus albis, centralibus 6 robustioribus longioribus (quorum 1 inferior robustissimus deflexus.) tenuiter subtatis albidis, basi nigrobulbosis apice subbellis. Flowers

× vertice parum depresso lanato

Dr Parry found this splendid species, (which the Indians name "Suwarrow") in rocky gravelly arid barren table lands from Tucson north to the Rio Gila; he has learned that it also occurs in Central Sonora near the head of streams which empty into the Gulf of California.

Maj Emory observed it 1846 from the Mouth towards the lower Gila and Dr Lecontes (who has explored California 1850 & 51) informed me that he found it ~~met with it in 1851~~ "~~common~~ along the Gila to within 20 miles of its mouth, where it suddenly disappears." — It is no doubt the same plant of which Mr Hartweg makes mention in his work on Mexico (II p. 225) where he says that the inhabitants of the Sierra Madre call it "Cardon" (Organos del Rey) on account of its extraordinary height.

Stems 25 to 60 feet high, 1-2 feet diameter, not absolutely cylindrical, but thickest ~~towards~~ about the ~~upper~~ lower end where generally the few (usually 2 or 3) alternate or sometimes opposite branches start, and from there slightly tapering towards the summit. Stems & branches slightly marked by transverse furrows indicating the annual(?) period of growth, forming rings of 4-8 inches in height. Branches unequal and always of less height than the main stem usually 5-10 feet long with 12-18 ribs. The stem externally consists of fleshy ~~substance~~, 3-6 inches in thickness; this encloses ~~then~~ a circle of bundles of ligneous fibres (which correspond with the intervals between the ribs) of a loose texture, tough & elastic; these bundles form continuous columns or sticks of ½ to 3 inches ~~thickness, into~~ in diameter by anastomosing increase in thickness towards the base and swell into irregular knotted horizontally spreading roots; ~~they are frequently~~ The exterior fleshy cellular tissue passes between the bundles and forms with the pith of 4-6 inches in diameter.

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The ribs are mostly vertical, below only about 12, broad, rounded with broad and shallow (4 inches & more wide) (4–5 inches wide) intervals worn and destitute of spines; upwards the number of ribs increases by bifurcation or by ~~intercalation~~ additional new ribs in the intervals; ~~there the ribs are~~ "sharply rounded" * with deep narrow (1½ inch wide) (2¼ inch wide) intervals and densely set with spines. Areolae somewhat elevated, circular, one inch distant. And the spines ½ – ¾ inch long; central one stouter, longer; the lowest deflexed ½ – ½ inch long, the 2 next lateral, and the three uppermost shorter, pointing upwards and outwards.

Dr Parry was informed that the flowers were produced in May & June from the summit of stem & branches; they are said to be white with a red centre, and 3 inches in diameter; fruit ~~is~~ matures in Aug ~~about~~, set with fine spines, about ¾ inch diameter, red pulpy, sweet. The seed (obtained by Mr. Lemmon and already noticed in his report) small & is black & smooth shining, with foliaceous cotyledons.

My opinion, ~~that this is a~~ true Cereus and not a Pilocereus ~~which I had expressed in Mr Lemmon's report~~, which was based on the examination of the seed, and its foliaceous cotyledons appear to be further confirmed by the fact that the young plant bears not hair like spines, or dense woolly head, and no Cephalium, and that the fruits are spinulose, not scaly. —

It is by far the largest Cereus known, and only ~~the~~ ~~Pel~~ some Peloceresi approach it in size.

<u>Mammillaria meiacanthe</u> (vide pag 28.

A larger specimen of this plant occurs in Mr Wrights collection, found in May 1851 in valleys between the San Pedro and the Pecos. more than 4 inches in diameter; Spines ~~[illegible]~~ pale gray, with brown points, lowest longest, radial usually 7, without an upper spine; central spine short & stout directed upwards; spines 3–5 l. long but stouter than in the specimen pag 28. Sometimes radial spines 8 or 9.

Coll. of 1852 Specimens 3–5 inches diameter tubercles in 13 to 21 rows; tubercles 8–9 l. long strongly quadrangular pyramidal; lowest angle at base protracted downward; axills naked spines 5 to 8 (mostly 6) stout straight or often irregularly curved lowest sometimes longer than the others, spines commonly 3–4 l. long; shortest sometimes only 2 l. longest ~~[illegible]~~ 5 l. long. Young areolae with long dirty white wool, which soon disappears. —

Found on stony hills from El Paso eastward to the Pecos & San Pedro River.

<u>Unripe</u> fruit in the specimens is globose and crowned with the remains of the flowers — therefore differing very much from the nearly related M. applanata. but the difference may be owing to its having grown while the specimen was boxed up. —

Seed reddish brown oval, rugose, in every respect similar to that of M. applanata, and larger and rounder than that of M. hemisphaerica

Mam micromeris parvula globosa, ~~apice~~ simplex vertice depressa, ~~simplex~~ ~~umbilicata~~; tuberculis minimis ∨ areolis juvenibus solum mox cano laxe (lanatis) vestitis ∨ vermiformibus, ~~denso cinereo~~ (confertissimis) apice fuscis; aculeis setiformibus cinereo-albidis stipatis ∨ plurisericeis in plantis juvenibus et (plantarum adultarum) tuberculis inferioribus sub 20, aequalibus, linea longis omnibus radiantibus; in tuberculis floriferis (versus apicem plantae versus) 30–40 undique stellato patentibus, aculeis superioribus 6–8 longioribus ~~multo~~ ~~longioribus~~ reliquos duplo terque ~~plus quam duplo~~ superantibus versus apicem clavatis floribus (ex axillis horum?) minimis, subsemibulibus ~~flavidis~~ clavatis elongatis, (corolla nudis) seminibus paucis digitaliformibus nigricantibus lucidis, sub lente laevissime ~~sulcatis~~.

Mountain tops and sides on naked places, from El Paso to the San Pedro River also in one locality east of the San Pedro abundantly; only on limestone, never in the porphyritic region. Ch. Wright 1849. 51/52 about Saltillo Dr Gregg 1848. — Small ~~balls~~, globose plants, ½ to 1 inch ~~in diameter~~ largest specimen 15–18 l. in diameter; densely covered by the delicate spines and ashy grey appearance. Tubercles about ½ l. long, crowded, 1–1½ l. distant, older ones losing the spines, giving the base of the plant a pretty tuberculated appearance. Spiral rows 21 to 34. Most prominent spines not pungent; ~~some much~~ longer forming a kind of beard at the vertex, intermingled with the loose wool of the young areolae. On the young tubercles the 6–8 longest upper spines appear first (as is indeed the case with all Mam. the upper most spines are always the first ~~developed~~) and are fully developed before the young rest ~~make~~ come out.

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Flowers, central, about 3 l. in diameter, shrivel or very light pink. Wright style exceeding the stamens, 3 stigmata. ~~Bright red~~ naked; flow ~~Gregg (Dr Engelm the first?)~~ Fruit clavate, 3–5 l. long (without the remains of) crimson, somewhat succulent, with very 1 l. in diameter thin membrane, soon drying up when it becomes shriveled and much shortened gray; Seeds only 6–12 in each fruit large for the plant, ½ l. diameter, lenticular-cordiform, thumb-shaped ¾ l. long with very wide umbilicus; testa hard, brittle.

vide pag 153.

Echinocactus albispinus globosus s. ovato-globosus; costis acutis, areolis ~~orbiculatis~~ (cum areola florifera ovatis) breviter albido-lanatis; aculeis ~~radialibus~~ omnibus ~~[illegible] albis~~ plus minus compressis, annulatis ~~[illegible]~~ albis radialibus sub-9, superioribus debilioribus, lateralibus robustioribus, rectis s. paulo curvatis, imo ~~nullo~~ deficiente aculeis centralibus 4, ~~[illegible]~~ 3 longiore, directis, inferiore robustiore deflexo, ~~bis sub compressis, recurvato~~.

This species was found by Mr Wright and Dr Bigelow on the sides of mountains from 30 to 60 miles south of El Paso in the State of Chihuahua. No ~~flowers~~ were seen, and no specimen collected; a few bunches of spines is all that I have before me. Mr Wright informs me, that the plant are about 12 inches in diameter and 15 inches high. The fragments before me indicate very sharp and compressed ribs; areolae of the spines orbicular, 6 lines in diameter, at the upper end connected with the smaller floriferous areola, and with that oval and 9 lines long spines remarkable for their white colour; ~~all stout~~ robust; ~~the stouter~~ ones flattened, the more slender ones more roundish, ~~radial spines~~ not much

appressed; 2 are directed laterally downwards
the 2 longest (14-16 l. long) are exactly lateral, and the 5 others
are directed upwards; of which the 3 uppermost
are ~~the~~ most slender (about 1 inch long)
and somewhat irregular. Central spines 4
long & stouter than the radial spines, ~~4~~; compressed, somewhat quadrangular at base
upper and lower strongest, particularly lower
one, about 2 inches long.

Evidently near E. texensis and
E. lati-costatus; ~~like them~~ the spines
in all of them are flattened, ~~and~~ annulated and curved
back and, ~~the~~ lower spine ~~suppressed~~ absent.
Our plant is ~~woolly~~ wollly distinguished by
the more numerous and white spines.
Is the flower and fruit also woolly?

(Echinocactus lecoraunthus Jurg
appears to slightly resemble our species)

Mammillaria lasiacantha n. sp. parvula ovato-globosa, simplex; ~~tuberculis~~ erectis cylindricis, axillis nudis albis s. denudatis areolis junioribus ~~albido~~-lanatis; aculeis setiformibus ~~v~~ ~~plurimis~~ rectis s. paulo recurvatis ciliato pilosulis, 40-~~60~~ (~~ad~~ 80), ~~valde inaequalibus~~ pluriseriatis, omnibus radiantibus, maxime inaequalibus; ~~parvis~~ lateralibus clavatis, corrineis, semiinclusis ~~tres~~ ~~distantes~~ nigricantibus scrobiculatis (sub glochidiis digitiformibus) oparis ecinereo

Leon Springs and Comanche Springs in the Region of the Pecos River; on low limestone hills among herbage.
Chas Wright 1851 & 1852

α. minor; caule minore, ovato aculeis pluriseriatis brevioribus, dense pilosulis

β. denudata caule majore globoso, aculeis plurimis subnudis

A pretty little plant, covered with innumerable soft more or less pubescent spines. The smaller form is ~~about~~ 9-12 lines high and 6-9 l.

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in diameter; tubercles in 8-13 spiral rows 2 l. long and nearly 1 l. in diameter, areolae 1½ l. distant from one another; spines from 40 to 60, 1½-3 l. long, the uppermost a little longer ~~than the~~ other, the innermost ~~much shorter~~ often not half as long. The larger form, β, is 1-1½ inch high and of almost the same diameter; tubercles 3 l. long in 13-21 rows; spines 50 to 80 in number, 1½-2½ l. long; almost or sometimes entirely naked; the innermost often much shorter. —

The fresh fruit is said to be elevate, scarlet; the older fruits remaining on old specimens are shrivelled up, grayish ovate elevate, deeply immersed between the tubercles, quite lateral (flower from the last year's growth?); seeds numerous 10-25 in each fruit, smaller than in M. micromeris; brown & brittle opaque and very conspicuously pitted. —

This species appears nearly related with M. micromeris, though ~~easily distinguished by the~~ the fruits, almost central in that species are quite lateral in this. It is easily distinguished by the longer and looser tubercles, the generally more or less hairy spines and the opaque pitted seeds.

Both species evidently belong to Salm's §. 3. Polyacanthae xx areolis patentissimis adpressis, next to M. ~~Zphaera~~ Schiedeana ~~Tritica~~ and Humboldtii. ~~Both~~ of which however ~~have bristles axillae~~, have much larger tubercles, axills bristly or woolly etc. M. microthele is the only one of fine descriptions which in the smallness of the tubercles can be compared with micromeris, but it has lateral spines etc.

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Echinocactus unicinatus vide pag 85.

costis 13, obliquis plus minus interruptis, aculeo centrali elongato, plus minus uncinato; vertice denudato; areolas florifera saepe glandulis cylindricis stipata; floribus infundibuliformibus, sepalis inferioribus ~~uniformibus~~ cordatis s. auriculatis, (membranaceis ~~ciliatis~~, baccae carnosae (coccineae?) ~~subtecta~~ s. sepalis membraneis squamaeformibus stipata s. subnuda.

gracili

~~E. Wislizenii~~

2. E. setispinus E vide Plantstreck. ~~Pflanzenreich~~ Journ vol V. p. 38. 1845. ibid vol. VI p. 201. (1850.) ~~Mem. of Amer. Acad. Vol IV. pag~~ Prince Salem Dyck

sem globoso-ovatis, digitiformibus, obliquis, opacis, ~~minute~~ tuberculosis, hilo magno

Cactae pag. 153 (1850). I have nothing to add to the descr. published by me 1850

seed 0.6 l. long

s. sinuatus Dietr

3. E Wrightii n. sp. globosus, costis 13 obliquis, ~~acutis~~ compressis, ~~saepe~~ interruptis, areolis ovatis, ~~ovatis~~ aculeis radialibus 12 setiformibus, flexilibus 3 inferioribus longioribus ~~inferioribus~~ purpureo fuscis ~~falcatis~~ straminei, centralibus 4 robustioribus setiformibus ~~superior~~ 3 superioribus rectis, purpureo-viridi, inferiore compresso, s. canaliculato, elongato apice ~~plerumque~~ sub-hamato, ~~[illegible]~~ basi purpureo-viridi, straminea; ~~+ sepalis~~ inferioribus 20–30 cordato-auriculatis, superioribus 15–20 lanceolatis basi auriculatis, margine membraneis; petalis 20–25 lanceolatis; stylo longe supra stamina exserto, stigmatibus 8 erecto-patulis; baccae ovatae, ~~[illegible]~~ oblongae, ~~[illegible]~~ ~~[illegible]~~ ~~[illegible]~~

four inches high of the same diameter;
ribs sharp; areolae 8-9 l. distant,
orbicular, or with the addition of the smaller
floral areola, ovate, ~~but without a~~
~~furrow~~ no groove on the upper end ~~of the~~
~~lower dark~~ spines, 3 purplish brown ~~with~~ lighter ~~tips~~ long at tip
3/4 — 1 inch, lateral
and upper, straw colour spines 6 or sometimes 7,
1 to 1 1/2 inches long; 3 upper central spines yellowish
generally darker at base, ~~yellowish~~ 1 1/2 — 2 inches
long; lower central spine very different from
all others much stouter, longer and flattened,
pale yellowish, often purplish at base, flexuous
more or less hooked, sometimes straight,
from 2 to ~~3 1/2 inches~~ long. — Flowers "yellow"
about 2 inches long; fruit oval 8-9 l. long. Seeds much smaller
than any echinocactus known to me,
0.4 and 0.5 l. in diam.

Near ~~the~~ E. setispinus ~~than to any~~
~~other form~~; ribs and most spines
similar; easily distinguished by the broad
elongated lower central spine, the much smaller shining seeds etc. Also near E. flexispinus
and echinomastus; distinguished
by the compressed ribs
stout spines and small
seeds. —
oval fruit ~~etc.~~ — ~~Mr Wright thinks~~
he has ~~seen~~ no other ~~similar species~~
~~near Austin, where he collected this early as 1847~~

~~1.~~ E. flexispinus Engel. — ~~Before the 2 others~~
Wist. Rep. Note 47. Viridis ~~ovatus~~ s. globosus s.
~~Ovato~~ globoso-ovatus, costis 13-17.
~~(costis 13-17)~~ obliquis tuberculato-interruptis
obtusis; areolis ~~ovatis oblongis~~ tuberculis orbiculato ovatis
juvenibus albo tomentosis distantibus
aculeis juvenibus ~~albidis~~ variegatis purpurascentibus apice pallidis
demum totis cinereis radialibus rigidis subtexentibus ~~infimis summis~~ ~~G = 16~~
rectis ~~vel subflexuosis~~ leviter curvatis; ve infimis saepissime
(tenuioribus pallidioribus), ~~infimo~~ termis, infimo
abbreviato, lateralibus 2-6 longioribus, subannulatis,
aculeis centralibus 4-1 solitariis ~~6~~ (Dij.) angulatis compressis plerumque
superioribus 3 rectis s. curvatis s. saepe recurvatis annulatis
infimo elongato saepe flexuoso, plus minus curvato, deflexo

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[illegible] 2–4 [illegible] [illegible]
[illegible] [illegible]

[illegible] 15–18 [illegible] [illegible]
[illegible] [illegible] [illegible] 20–30 [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] 10–20 [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

viridis

4. E. brevihamatus n. sp. obovato-globosus costis 13 compressis tuberculatis, tuberculis ~~usque~~ ~~ad medium~~ ~~dimidio~~ tomentoso silvatis; areolis obovatis, juvenilibus albotomentosis; albidis spiis adultis aculeis ~~12~~ radialibus 12 tenuibus rectis ~~12~~, subaequalibus ~~12~~ centralibus 4, complanatis; 3 superioribus rectis, ~~sum~~ deratis, infimum hamatum aequantibus. see pg. 157

~~Between the Lompoc~~ On the San Pedro; precise locality not recollected. coll. 1852. — A single specimen made with the following species ~~is before me~~ was gathered. It appears to be a young plant, but has such striking characteristics that I must consider it distinct from any here described; ~~though in age it~~ when full grown it may become considerably altered. —

My specimen is 2½ inches high and 2 in diam. ~~Areolae~~ 9 – 12 l. distant; spines whitish with dark brown or black tips; radial spines 5 – 9 l. long; lower ones ~~shorter~~ the shortest ~~central~~ ~~slender but~~ regularly radiating, slender but not setose; central spines 10 – 14 l. long the lowest broadest, horizontal, ~~equal to the supp. ones~~ usually a little shorter. ~~the~~ the supp. ones

× tubercles with a linear groove half way down to their base

albi (Eucanonistrus) viridis see pg. 120

5. E. ~~longihamatus~~ ~~Galeotti~~ globosus s. depresso-globosus; costis 13 tuberculatis ~~obliquis~~ tuberculis mammillaeformibus, parum compressis superiore lanceolato-sulcatis; areolis obovatis juvenilibus albo tomentosis ~~aculeis~~ radialibus 12 – ~~14~~ 15, ~~rectis~~ infimis summisque tenuibus setaceis ~~horizontalibus~~ ~~rectis~~ ~~flexuosis~~ ~~vel~~ ~~flexuosis~~ ~~vel~~ ~~flexuosis~~ ~~vel

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~~Cactaceae~~

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On rocky ledges on the Limpio, San Pedro, and San Felipe. — Specimens before me 2 to 5 inches high, 2–6 in diameter; largest ones 7–8 inches high (Wright). Tubercles more distinct than in any other of our species, and especially in young plants; areola a little below the top of the tubercle. Areolae in younger plants 3/4–1 ~~inch distant~~, in older ones 1/4 – 1/2 inch distant. In young plants 12 radial spines 1/2 – 1 inch long with one central one of 1–2 inches length; middle-sized specimens have 10–12 radial and 4 central spines and older, larger ones 12–16 radial and 4 central spines; all, but more so the radial spines are purplish when young, at least at base, afterwards the central spines are purple only at base, otherwise yellowish white; All spines are more or less curved or flexuous; Radial spines terete, the upper ones weaker, lateral ~~spines~~ ~~[illegible]~~ 1/2–2 inches, others 1/4–1/2 inches long; central spines compressed, at base 4-angled, ~~and~~ very indistinctly annulate; ~~upper ones turned upwards~~, 2–3 inches long lower ~~one hooked~~, ~~and~~ with a single hook, 3–4 inches in length. The long white hooked spines give the plant a striking peculiar appearance. It is most ~~undoubtedly~~ probably the same as Galeotti's E. longihamatus from Mexico (what part?) which is described as having 9 radial & 4 central spikes, the hooked spines 4–5 inches long, though the areolae are said to be oval. E. hamatocanthus Muhlenpf. is ~~among~~

This and flexuosus appear not to differ

often somewhat pubescent

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